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ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

WDID	WDID
Discharger	Tsar Nicoulai Caviar, LLC and the Ralph F. Nix 1995 Revocable Trust
Name of Facility	Tsar Nicoulai Sturgeon Farm, Wilton
Facility Address	10822 Gay Road
	Wilton, CA 95693
	Sacramento County
Facility Contact, Title and Phone	Jerry Schwartz, General Manager, (415) 543-3007
Authorized Person to Sign and Submit Reports	Jerry Schwartz, General Manager, (415) 543-3007
Mailing Address	60 Dorman Avenue, San Francisco, CA 94124
Billing Address	60 Dorman Avenue, San Francisco, CA 94124
Type of Facility	Concentrated Aquatic Animal Production/ Fish Hatchery (CAAP Facility), SIC Codes 0921 and 0273
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B
Pretreatment Program	Not Applicable
Reclamation Requirements	Not Applicable
Facility Permitted Flow	3.1 million gallons per day (mgd)
Facility Design Flow	Not Applicable
Watershed	North Valley Floor Hydrologic Unit
Receiving Water	Unnamed Tributary of the Cosumnes River
Receiving Water Type	Stream

- A. Tsar Nicoulai Caviar, LLC is the owner and operator of the Tsar Nicoulai Sturgeon Farm, a fish farm. Tsar Nicoulai Caviar, LLC and the Ralph F. Nix 1995 Revocable Trust own the property at 10822 Gay Road, Wilton, on which the Facility is located. Together Tsar Nicoulai Caviar, LLC and the Ralph F. Nix 1995 Revocable Trust are hereinafter referred to as Discharger. Tsar Nicoulai Caviar, LLC is responsible for maintaining compliance with this Order. The Ralph F. Nix 1995 Revocable Trust is not responsible for the Facility's operations or the discharge to surface waters. The Ralph F. Nix 1995 Revocable Trust is also not responsible for the solids drying beds on the parcels it owns; however, is ultimately responsible if enforcement actions against Tsar Nicoulai Caviar, LLC are ineffective or would be futile, or if enforcement is necessary to protect public health or the environment. Tsar Nicoulai Caviar, LLC is currently negotiating the purchase of the remaining Facility property from the Ralph F. Nix 1995 Revocable Trust. This Order includes provision that will allow the Regional Water Board to re-

open this Order should the sole ownership of the Facility property be transferred to Tsar Nicoulai Caviar, LLC.

- B. The Facility discharges wastewater to a Sacramento County storm drain, which discharges to an unnamed tributary of the Cosumnes River, a water of the United States. Tsar Nicoulai Sturgeon Farm is a new facility that is not currently regulated by a Regional Water Board Order.
- C. The Discharger submitted a Report of Waste Discharge (RWD), dated May 9, 2003, and applied for a National Pollutant Discharge Elimination System (NPDES) permit authorization to discharge up to 3.1 mgd of treated wastewater from the Tsar Nicoulai Sturgeon Farm. Supplemental Information was requested on June 25, 2003, and received on October 19, 2004. On December 23, 2004, the application was deemed complete pending the receipt of documents for compliance with CEQA requirements. A site visit was conducted on April 7, 2005, to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Facility is located on approximately 17 acres, 0.8 miles southwest of Wilton, Sacramento County, within Assessor's Parcel Numbers (APNs) 134-0173-013 and 134-0173-014, as shown in Attachment B.

According to the Discharger's RWD, the Facility raises white sturgeon (*Acipenser transmontanus*) for sale as fresh and smoked meat, and for caviar. The Facility reported an annual production goal of 250,000 pounds (lbs), and approximately 90,000 lbs of food used during the month of maximum feeding (August). Under the NPDES program, the Facility is considered a concentrated aquatic animal production (CAAP) facility.

The wastewater discharges from the Facility include unused food, fish excrement, and algae. The Discharger currently uses sodium chloride (salt) to control fish infections from surface abrasions and the spread of fish disease. The Discharger confirmed during the April 7, 2005 site visit that salt is the only chemical additive that will be used at the Facility. According to the RWD and as confirmed during the site visit, the Discharger does not currently use or plan to use any other aquaculture chemicals or drugs in its operations.

A. Description of Wastewater and Biosolids Treatment or Controls

1. Process supply water is obtained from two wells located in the southeast corner of the Facility. The combined capacity of the two process supply wells is 2150 gpm. The supply water passes through a degassing/aeration tower before it is mixed with process re-circulation water and fed to the fish tanks. Up to 90%, on a long-term basis, of the Facility's process wastewater will be re-circulated. With a 90% re-circulation rate, the Discharger anticipates that the Facility's make-up, or source water demand will be 860 gpm.
2. Facility source water from the degassing/aeration tower flows to a return canal where it mixes with re-circulated wastewater. The water is then pumped to eighteen 50-ft diameter lined steel grow-out tanks. Water from the grow-out tanks, containing fish excrement and unused food is discharged to a drainage canal that conveys the wastewater to three large

drum filters to remove particulates down to 60 µm. Sludge from the drum filters is collected in four settlement tanks configured in series (sludge/solids disposal is discussed below in Section II.A.3 of this Fact Sheet). After filtration, wastewater is channeled through a 2.7 million gallon, U-shaped pond containing aquatic vascular vegetation for direct nutrient uptake and settling. Residual ammonia and dissolved organics are removed by a media based biofiltration system placed within the U-shaped pond. Wastewater from the pond is either discharged offsite or routed to the return canal where it can optionally be sent through a 12-channel biofiltration field for further nutrient removal and temperature modification or re-circulated to the grow-out tanks. Wastewater may be discharged from the treatment pond to Discharge Point 001 through one of two standpipes located within the pond.

3. The solid waste accumulated through the filtration system, and the sludge settlement tanks, approximately 400 lbs/day of uneaten fish feed and fecal material from the fish tanks (wet weight), will be dried in 2500 sq ft unlined drying beds located on a two acre parcel of the Facility's farm. The Facility's maximum annual production of dried fish soil will be approximately 9,000 cubic feet, and will be moved to a covered pile to prevent wind and rain losses and then seasonally applied as mulch and fertilizer to the 0.75 acres of lawns that will surround the onsite employee housing. This Order prohibits the discharge of solids to lands not owned or operated by the Discharger, or in a manner not approved by the Executive Officer.

B. Discharge Points and Receiving Waters

1. Wastewater from the Facility is discharged from the U-shaped nutrient uptake and settling pond to Discharge Point 001, into a Sacramento County drainage ditch along the south side of Gay Road, located at the northeast corner of APN 134-0173-014.
2. Once offsite, wastewater flow continues along the natural storm drainage route, and discharges to an unnamed tributary of the Cosumnes River that flows through APNs 134-0141-012 and 134-0141-011, and is ultimately discharged to the Cosumnes River.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

The RWD and Discharger Monitoring describe the discharge as follows:

<u>Constituent</u>	<u>Units</u>	<u>Maximum Daily</u>
Flow	mgd	3.1
Ammonia as N	mg/L	0.69
CBOD ₅ @20 °C	mg/L	5.1
Nitrate-N	mg/L	7.7
pH	standard units	6.9 - 8.1 (range)
Total Phosphorous	mg/L	0.45
Total Dissolved Solids	mg/L	220
Volatile Settleable Solids	mg/L	12
Total Suspended Solids	mg/L	18

D. Compliance Summary – Not Applicable

E. Planned Changes

Currently (post Phase I construction), the Facility includes 18 production tanks that are designed to hold standing stocks of 540,000 lbs with an annual production goal of 125,000 lbs. Phase II of the construction process will add an additional 14 production tanks, 12 sorting tanks, a hatchery, and will increase total farm capacities to 1,020,000 lbs of standing stocks with an annual production goal of 250,000 lbs. Other components of Phase II include additions of onsite employee housing, a farm utility building that will offer improved laboratory space, and automated tank monitoring and alarming systems. Implementation of Phase II was planned to begin in late 2004.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (CWC). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.

B. California Environmental Quality Act (CEQA)

The County of Sacramento recorded a Notice of Exemption for the Facility on September 24, 2004. However, the September 24, 2004 Negative Declaration did not adequately address potential impacts to water quality. Therefore, the Regional Water Board, as lead agency for water quality impacts, has considered the Negative Declaration on DATE, and concurs that compliance with the requirements set forth in this Order will mitigate any significant impacts to water quality.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The Regional Water Board adopted a *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan.

The Basin Plan at page II-2.00 states that the beneficial uses of any specifically identified water body generally applies to its tributary streams. The Basin Plan does not specifically identify beneficial uses for the unnamed tributary of the Cosumnes River, but does identify

present and potential uses for the Cosumnes River, to which the unnamed tributary of the Cosumnes River is tributary. These beneficial uses are municipal and domestic supply (MUN); agricultural supply, irrigation and stock watering (AGR); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); warm and cold migration of aquatic organisms (MIGR); warm and cold spawning (SPWN); wildlife habitat (WILD). In addition, State Water Resources Control Board (State Water Board) Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. Thus, as discussed in detail in this Fact Sheet, beneficial uses applicable to the unnamed tributary of the Cosumnes River are as follows:

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Unnamed Tributary of the Cosumnes River	<u>Existing:</u> MUN, AGR, REC-1, REC-2, WARM, COLD, MIGR, SPWN, WILD.

The Basin Plan on page II-1.00 states: *“Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...” and with respect to disposal of wastewaters states that “...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.”*

The federal Clean Water Act, Section 101(a)(2), states: “it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.” Federal Regulations, developed to implement the requirements of the Clean Water Act, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR Sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after November 28, 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR Section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

In reviewing whether the existing and/or potential uses of the Cosumnes River apply to the unnamed tributary of the Cosumnes River, the Regional Water Board has considered the following facts:

a. Domestic Supply and Agricultural Supply

The Regional Water Board is required to apply the beneficial uses of municipal and domestic supply to the unnamed tributary of the Cosumnes River based on State Water Board Resolution No. 88-63 which was incorporated in the Basin Plan pursuant to Regional Water Board Resolution No. 89-056.

b. Water Contact and Noncontact Recreation and Esthetic Enjoyment

The Regional Water Board finds that the discharge flows through residential areas, there is ready public access to the receiving water, exclusion of the public is unrealistic and contact recreational activities currently exist along the unnamed tributary of the Cosumnes River and downstream waters. Prior to flowing into the Cosumnes River, the unnamed tributary flows through areas of general public access, meadows, residential areas, and parks. The Cosumnes River also offers recreational opportunities.

c. Preservation and Enhancement of Fish, Wildlife, and Other Aquatic Resources

The unnamed tributary flows to the Cosumnes River. The Basin Plan (Table II-1) designates the Cosumnes River as being both a cold and warm freshwater habitat; wildlife habitat; warm and cold migration of aquatic organisms; and warm and cold spawning, reproduction, and/or early development of freshwater organisms. The unnamed tributary supports a private pond before discharging to the Cosumnes River. It is unknown whether the pond support significant aquatic life; however, the Cosumnes River does, and therefore these beneficial uses apply to its unnamed tributaries.

Upon review of the flow conditions, habitat values, and beneficial uses of the unnamed tributary of the Cosumnes River, and the facts described above, the Regional Water Board finds that the beneficial uses identified in the Basin Plan for the Cosumnes River are applicable to the unnamed tributary in the vicinity of the discharge.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995 and November 9, 1999, and the CTR on May 18, 2000, which was amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.
3. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The SIP includes procedures for determining the need for and calculating water quality-based effluent limitations (WQBELs), and requires Dischargers to submit data sufficient to do so.
4. **Compliance Schedules and Interim Requirements.** In accordance with Section 2.1 of the SIP, compliance schedules and interim requirements may only be granted to existing discharges. Since Facility's discharge is a new pollutant source, compliance schedules and interim requirements may not be granted in this Order.

5. **Antidegradation Policy.** The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.
6. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and 40 CFR Section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. This is a new NPDES permit; therefore anti-backsliding provisions do not apply.
7. **Monitoring and Reporting Requirements.** Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and State requirements. This MRP is provided in Attachment E.
8. **Storm Water Requirements.** U.S. EPA promulgated Federal Regulations for storm water on November 16, 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program does not regulate storm water discharges from Concentrated Aquatic Animal Production Facilities or Fish Hatcheries.

D. Impaired Water Bodies on CWA 303(d) List

The unnamed tributary of the Cosumnes River is not listed as an impaired water body.

E. Other Plans, Policies and Regulations – Not Applicable

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

The federal Clean Water Act (CWA) mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law. (33 U.S.C., Section 1311(b)(1)(C); 40 C.F.R., Section 122.44(d)(1)) NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that “*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.*” Federal Regulations, 40 CFR, Section 122.44(d)(1)(vi), further provide that “[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent

at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits.”

The Regional Water Board’s Basin Plan, page IV-17.00 contains an implementation policy (“Policy for Application of Water Quality Objectives”) that specifies that the Regional Water Board “*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.*” This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including EPA’s published water quality criteria, a proposed state criterion (*i.e.*, water quality objective), or an explicit state policy interpreting its narrative water quality criteria (*i.e.*, the Regional Water Board’s “Policy for Application of Water Quality Objectives”)(40 C.F.R. 122.44(d)(1) (vi) (A), (B) or (C)). The Basin Plan contains a narrative objective requiring that: “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*”. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. The beneficial uses include MUN, AGR, REC-1, REC-2, WARM, COLD, MIGR, SPWN, and WILD. The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs. When a reasonable potential exists for exceeding a narrative objective, Federal Regulations mandate numerical effluent limitations and the Basin Plan clearly establishes a procedure for translating the narrative objectives into numerical effluent limitations.

A. Discharge Prohibitions

1. As stated in Section I.G of Attachment D, Federal Standard Provisions, this Order prohibits bypass from any portion of the treatment Facility. Federal Regulations, 40 CFR 122.41 (m), define “bypass” as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board’s prohibition of bypasses, the State Water Resources Control Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation. In the case of *United States v. City of Toledo, Ohio* (63 F. Supp 2d 834, N.D. Ohio 1999) the Federal Court ruled that “any bypass which occurs because of inadequate plant capacity is unauthorized...to the extent that there are ‘feasible alternatives’, including the construction or installation of additional treatment capacity”.
2. Fish raised in CAAP facilities may become vulnerable to disease and parasite infestations. Various aquaculture drugs and chemicals may be used periodically at CAAP facilities to

ensure the health and productivity of the confined fish population, as well as to maintain production efficiency. Aquaculture drugs and chemicals may be used to treat fish for parasites, fungal growths and bacterial infections. Also, aquaculture drugs and chemicals are sometimes used to anesthetize fish prior to spawning or “tagging” processes. The Discharger confirmed during the April 7, 2005 site visit that salt is the only chemical additive that will be used at the Facility. Therefore, this Order prohibits the use and discharge of aquaculture drugs and chemicals, other than salt, from the Facility without first submitting a RWD and receiving a permit authorizing the discharge from the Regional Water Board.

B. Technology-Based Effluent Limitations

1. Scope and Authority

- a. A cold-water concentrated aquatic animal production (CAAP) facility is defined in Title 40 of the Code of Federal Regulations (40 CFR 122.24) as a fish hatchery, fish farm, or other facility that contains, grows, or holds cold-water fish species or other cold-water aquatic animals in ponds, raceways, or other similar structures. In addition, the facility must discharge at least 30 calendar days per year, produce at least 20,000 pounds (9,090 kilograms) harvest weight of aquatic animals per year, and feed at least 5,000 pounds (2,272 kilograms) of food during the calendar month of maximum feeding. A facility that does not meet the above criteria may also be designated a cold-water CAAP facility upon a determination that the facility is a significant contributor of pollution to waters of the United States [40 CFR 122.24(c)]. Cold-water, recirculating CAAP facilities are designed to minimize water requirements, which leads to small-volume, concentrated waste streams as well as makeup water overflow. Waste streams from recirculating systems are typically a small but continuous flowing effluent. Flows from CAAP facilities ultimately are discharged to waters of the United States and of the State. 40 CFR 122.24 specifies that CAAP facilities are point sources subject to the National Pollutant Discharge Elimination System (NPDES) program. The Discharger’s facility meets the NPDES definition of a cold-water, recirculating CAAP facility.
- b. The operation of CAAP facilities may introduce a variety of pollutants into receiving waters. USEPA identifies three classes of pollutants: (1) conventional pollutants (i.e., total suspended solids (TSS), oil and grease (O&G), biochemical oxygen demand (BOD), fecal coliform, and pH); (2) toxic pollutants (e.g., metals such as copper, lead, nickel, and zinc and other toxic pollutants; and (3) non-conventional pollutants (e.g., ammonia-N, Formalin, and phosphorus). Some of the most significant pollutants discharged from CAAP facilities are solids from uneaten feed and fish feces that settle to the bottom of the raceways. Both of these types of solids are primarily composed of organic matter including BOD, organic nitrogen, and organic phosphorus.
- c. On August 23, 2004 USEPA published Effluent Limitation Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category (hereafter “ELG”). These ELGs became effective on September 22, 2004. The ELG regulation establishes national technology-based effluent discharge requirements for flow-through and recirculation systems and for net pens based on BPT, BCT, BAT and NSPS. In its proposed rule, published on September 12, 2002, USEPA proposed to

establish numeric limitations for a single constituent – total suspended solids (TSS) – while controlling the discharge of other constituents through narrative requirements. In the final rule, however, USEPA determined that, for a nationally applicable regulation, it would be more appropriate to promulgate qualitative TSS limitations in the form of solids control best management practices (BMP) requirements. Furthermore, the final ELG does not include numeric effluent limitations for non-conventional and toxic constituents, such as aquaculture drugs and chemicals, but also relies on narrative limitations to address these constituents. The final ELG applies to CAAP facilities that produce, hold or contain 100,000 pounds or more of aquatic animals per year (any 12 month period). The Discharger's facility is therefore subject to ELG requirements.

2. Applicable Technology-Based Effluent Limitations

- a. **Total Suspended Solids (TSS) and Settleable Solids.** USEPA's final ELG for the aquaculture industry does not include numeric effluent limitations on any conventional, non-conventional, or toxic constituents. Rather, USEPA promulgated qualitative limitations in the form of BMP requirements. Technology-based requirements in this Order are based on the ELG. To comply with the ELG, this Order includes a narrative effluent limitation that requires the Discharger to minimize the discharge of total suspended solids to the BAT/BCT through implementing best management practices established in Special Provision VI.C.3 of this Order.
- b. **Flow.** This Order contains a maximum daily effluent discharge flow limitation of 3.1 mgd and an average monthly effluent discharge flow limitation of 1.2 mgd based on the maximum daily effluent flow of 3.1 mgd and long term average effluent flow of 1.2 mgd reported in the Discharger's RWD, respectively. In accordance with 40 CFR Section 122.45, this Order includes mass effluent limitations based on the long term average effluent flow of 1.2 mgd reported in the Discharger's RWD.

3. Final Technology-Based Effluent Limitations

Table F-1 summarizes the final technology-based effluent limitations established in this Order.

Table F-1
Summary of Technology-based Effluent Limitations
Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	1.2	--	3.1	--	--
The Discharger shall minimize the discharge of Total Suspended Solids to the BAT/BCT through implementing best management practices established in Special Provision VI.C.3 of this Order.						

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in 40 CFR Section 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

- a. The receiving water body is an unnamed tributary of the Cosumnes River that flows through neighboring properties, and is utilized in a private pond. The Regional Water Board finds that based on the available information and on the Discharger's application, that unnamed tributary of the Cosumnes River, absent the discharge, is an ephemeral stream. The ephemeral nature of unnamed tributary of the Cosumnes River means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within the unnamed tributary of the Cosumnes River help support the aquatic life. Both conditions may exist within a short time span, where the unnamed tributary of the Cosumnes River would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the Cosumnes River. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall years. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Therefore, the Regional Water Board has evaluated the need for water quality-based effluent limitations for pollutants without benefit of dilution in this Order. These water quality-based effluent limitations are based on the application of water quality criteria or objectives at the point of discharge (Discharge 001).
- b. The minimum effluent hardness, maximum receiving water pH limitation, and estimated effluent temperature were used to develop hardness, pH, and/or temperature dependent WQBELs. Effluent, instead of receiving water hardness and temperature were used to develop these limitations because receiving water data (unnamed tributary of the Cosumnes River) in the vicinity of the discharge are unavailable. These worst-case values have been chosen to protect the beneficial uses of the receiving water and are summarized below:

Hardness:	130 mg/L
pH:	8.5 standard units
Temperature:	75 °F

3. Determining the Need for WQBELs

- a. Reasonable potential (RP) was determined by calculating the projected maximum effluent concentration (MEC) for each constituent and comparing it to applicable water quality criteria; if a criterion was exceeded, the discharge was determined to have reasonable potential to exceed a water quality objective for that constituent. The projected MEC is determined by multiplying the observed MEC by a factor that accounts for statistical variation. The multiplying factor is determined (for 99% confidence level and 99% probability basis) using the number of results available and the coefficient of variation (standard deviation divided by the mean) of the sample results. In accordance with the SIP, non-detect results were counted as one-half the detection level when calculating the mean. For all constituents for which the source of the applicable water quality standard is the CTR or NTR, the multiplying factor is 1. Reasonable potential evaluation was based on the methods used in the SIP and the U.S. EPA Technical Support Document for Water Quality-Based Toxics Control [EPA/505/2-90-001].
- b. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs the Regional Water Board finds that the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for iron, manganese, chloride, nitrate, ammonia, electrical conductivity, and total dissolved solids. Effluent limitations for these constituents are included in this Order.
- c. The reasonable potential analysis for detected constituents is summarized below in Table F-2. Background data for the receiving water have not been summarized because no data are available.

Table F-2.
RPA Summary for Detected Constituents
Discharge 001

Parameter	Units	MEC ¹	99 th MEC ¹	WQO/ WQC ²	Source	RP ³
Arsenic	µg/L	4.1	54	10	USEPA Primary MCL	I ⁴
Chromium III	µg/L	0.66	8.7	50	California Primary MCL	N
Copper	µg/L	1.4	1.4	12/18	CTR CCC/CMC	N
Mercury	µg/L	0.002	0.002	0.05	CTR HH	N
Nickel	µg/L	6.5	6.5	65/590	CTR CCC/CMC	N
Zinc	µg/L	6.5	6.5	150	CTR CCC/CMC	N
Toluene	µg/L	1.1	14	42	USEPA Taste and Odor	N

Parameter	Units	MEC ¹	99 th MEC ¹	WQO/ WQC ²	Source	RP ³
Aluminum	µg/L	61	805	87/750	USEPA Recommended National Water Quality CCC/CMC	I ⁴
Barium	µg/L	48	634	1000	California Primary MCL	N
Iron	µg/L	390	5148	300	California Secondary MCL	Y
Manganese	µg/L	300	3960	50	California Secondary MCL	Y
Fluoride	µg/L	220	2904	1000	California PHG, Drinking Water	I ⁴
Chloride	mg/L	8.1	107	106	Water Quality for Agriculture	Y ⁵
Nitrate	mg/L	7.7	43	10	California Primary MCL	Y
Nitrite	µg/L	120	1584	700	USEPA IRIS	I ⁴
Sulfate	mg/L	5.1	67	250	California Secondary MCL	N
Ammonia as N	µg/L	690	3864	591/2140	USEPA Recommended National Water Quality Criteria	Y
MBAS	µg/L	73	964	500	DHS Action Level, Drinking Water	I ⁴
Electrical Conductivity	µmhos/cm	320	4224	700	Water Quality for Agriculture	Y ⁵
Total Dissolved Solids	mg/L	220	1232	450	Water Quality for Agriculture	Y ⁵

1. MEC: maximum effluent concentration. 99th MEC: maximum predicted effluent concentration using 99th percentile multiplier, note that multiplier is equal to “1” when applying CTR criteria.

2. WQO: water quality objective. WQC: water quality criteria.

3. Reasonable potential.

4. Indeterminate, inadequate information to establish limitations. See discussion below.

5. Reasonable potential found due to use of salt at the facility

- d. **Total Iron.** The Basin Plan includes a water quality objective that “...water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations... Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449.” Municipal and domestic supply is a beneficial use of the receiving stream. Based on information included in analytical laboratory reports submitted by the Discharger, iron in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit of 300 µg/L. The Basin Plan also includes a water quality objective that water “...shall be free of discoloration that causes nuisance or adversely affects beneficial uses.” The Basin Plan identifies non-contact water recreation, which includes aesthetic enjoyment, as a beneficial use of the Receiving Water. Iron concentrations in excess of the Secondary MCL-Consumer Acceptance Limit cause aesthetically undesirable discoloration. The maximum observed effluent iron concentration was 390 µg/L. An average monthly effluent limitation (AMEL) of 300 µg/L for total iron is included in this Order and is based on the Basin Plan water quality objectives for chemical constituents and color and the DHS Secondary MCL. It is unknown whether the Discharger can meet these new effluent limitations for iron.
- e. **Total Manganese.** The Basin Plan includes a water quality objective that “...water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of

Regulations... Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449.” Municipal and domestic supply is a beneficial use of the receiving stream. Based on information included in analytical laboratory reports submitted by the Discharger, manganese in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit of 50 µg/L. The maximum observed effluent manganese concentration was 300 µg/L. An AMEL of 50 µg/L for total manganese is included in this Order and is based on the Basin Plan water quality objectives for chemical constituents and the DHS Secondary MCL.

- f. **Nitrate.** Nitrate is known to cause adverse health effects in humans. The Basin Plan’s chemical constituents water quality objective prohibits chemical constituents in concentrations that exceed drinking water MCLs published in Title 22 of the California Code of Regulations or that adversely affect beneficial uses. Municipal and domestic water supply is a beneficial use of the receiving stream. The California Department of Health Services (DHS) has adopted a Primary MCL for the protection of human health for nitrate that is equal to 10 mg/L (measured as nitrogen). The maximum observed effluent nitrate concentration was 7.7 mg/L, with a projected maximum effluent concentration of 43 mg/L. The projected maximum effluent concentration for nitrate has the reasonable potential to exceed the Basin Plan’s “Chemical Constituent” objective. Therefore, this Order includes an AMEL for nitrate of 10 mg/L (measured as nitrogen), considering protection of the Basin Plan objective.
- g. **Ammonia.** Ammonia can be toxic to aquatic organisms in surface waters. Aquatic habitat is a beneficial use of the receiving stream. USEPA has developed Ambient Water Quality Criteria for ammonia. Applying 40 CFR Section 122.44(d)(1)(vi)(B), it is appropriate to use USEPA’s Ambient National Water Quality Criteria for the Protection of Freshwater Aquatic Life for ammonia, which was developed to be protective of aquatic organisms. The acute criterion for ammonia is dependent on pH and fish species present, and the chronic criterion is dependent on pH and temperature. In general, ammonia toxicity increases with increases in pH and temperature. At lower temperatures, the chronic criterion is also dependent on the presence or absence of early life stages of fish (ELS).

The beneficial uses of the receiving water include warm freshwater aquatic habitat (WARM), cold freshwater aquatic habitat (COLD), migration of aquatic organisms (MIGR) in warm and cold habitat, warm habitat spawning (SPWN). The early life stages of fish are likely present during the permitted period of discharge.

The Basin Plan maximum receiving water pH limitation of 8.5 units and estimated temperature of 75°F were used to determine the USEPA Recommended Ambient Water Quality Criterion for Fresh Water Aquatic Life, 30 day average chronic criteria, or criterion continuous concentration for ammonia of 0.59 mg as N (Nitrogen)/L. Additionally, the highest 4 day average concentration within the 30-day period should not exceed 2.5 times this criterion ($2.5 \times 0.59 = 1.5$ mg as N/L). Considering the

maximum pH value of 8.5 pH Units and the presence of salmonids, the USEPA Recommended Ambient Water Quality Criterion for Fresh Water Aquatic Life, maximum 1-hour acute criteria, or criteria maximum concentration for ammonia is 2.1 mg as N/L.

Ammonia was detected in the Discharger's effluent at a concentration of 0.69 mg/L. Using the TSD reasonable potential analysis procedure, the projected MEC of ammonia in the effluent is 3.9 mg/L; therefore, there is a reasonable potential that the discharge may exceed the USEPA chronic and acute criteria for ammonia and cause or contribute to an excursion above the narrative toxicity objective. This Order contains an AMEL considering the USEPA chronic criteria, and a one-hour maximum effluent limitation considering USEPA's acute ammonia criteria.

- h. **Sodium Chloride, chloride, EC and TDS.** The Discharger reports that sodium chloride (salt) is used at the Facility. Sodium chloride is used as a stress reducer, infection inhibitor, osmoregulatory enhancer, and as a treatment for fish lice. FDA considers sodium chloride an unapproved new animal drug of low regulatory priority (LRP drug) for use in aquaculture. Consequently, FDA is unlikely to take regulatory action if an appropriate grade is used, good management practices are followed, and local environmental requirements are met.

In water, sodium chloride breaks apart into an aqueous solution of sodium and chloride ions that contribute to total dissolved solids (TDS) concentrations. TDS are solids that can be dissolved in water. These solids may include carbonate, bicarbonate, chloride, sulfate, phosphate, nitrate, calcium magnesium, sodium, organic ions, and other ions. The salinity of wastewater is determined by measuring electrical conductivity to measure the ability of a water molecule to carry an electrical current, a property that is proportional to the concentration of ions in solution. When salts dissolve in water, ions are formed and the solution will conduct electricity. Conductivity increases with salinity because of the increasing presence of ions (usually sodium and chloride ions).

The Basin Plan contains a narrative objective for chemical constituents that state, in part, "Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses." Agricultural irrigation is a beneficial use of the receiving water. *Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1* (R.S. Ayers and D.W. Westcot, Rome, 1985), recommends that the electrical conductivity (EC) level in waters used for agricultural irrigation not exceed 700 $\mu\text{mhos/cm}$ (Agricultural Water Quality Goal) because it will reduce crop yield for sensitive plants. The Agricultural Water Quality Goal for TDS is 450 mg/L. The Agricultural Water Quality Goal for chloride is 106 mg/L.

Because dissolved ions in water increase EC, the measures of TDS, chloride ion, and EC are related. Therefore, effectively controlling the level of EC in an effluent will also result in the presence of less TDS and chloride in the effluent. Due to the direct application of salt to water flowing through the facility and, therefore, the potential discharge of salt, the Regional Water Board has determined that the discharger may

cause, have the reasonable potential to cause, or contribute to an in-stream excursion of the narrative water quality objective for chemical constituents. Applying the Basin Plan “Policy for Application of Water Quality Objectives”, the numeric standard that implements the narrative objective is the Agricultural Water Quality Goal of 700 $\mu\text{mhos/cm}$. Therefore, an effluent limitation for EC at 25°C of 700 $\mu\text{mhos/cm}$ as a monthly average is necessary in order to ensure protection of both the agricultural and aquatic life beneficial uses of receiving waters. Given that an effluent limitation for EC is included, and because of the direct relationship between EC, TDS and chloride, this Order does not include effluent limitations for TDS or chloride. However, in order to establish the specific relationship between EC, TDS and chloride in the Discharger’s effluent, both TDS and chloride monitoring are required.

The effluent limitation established for EC in this Order has been established as a maximum limitation due to the limited monitoring data available to the Regional Board during the development of this Order. This Order assigns maximum EC limits and monitoring to gather information and may be reopened to include more stringent EC effluent limits should future monitoring indicate the need.

- i. **pH.** The Basin Plan includes numeric water quality objectives that the pH “...not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.” The receiving water is designated as having both COLD and WARM beneficial uses. An effluent limitation for pH is included in this Order, and is based on the Basin Plan objectives for pH.
- j. **Arsenic, Aluminum, Fluoride, Nitrite, and Methylene Blue Active Substances (MBAS).** Insufficient information is available to determine whether arsenic, aluminum, fluoride, chloride, nitrate, and MBAS levels in the discharge have reasonable potential to cause or contribute to an in-stream excursion above applicable water quality objectives. There is only one effluent data point available for each of these constituents; also, as indicated in Table F-2, each data point is less than the respective WQO. Instead of limitations, additional monitoring has been established for these constituents with a re-opener provision should monitoring results indicate that the discharge has the reasonable potential to cause an exceedance of water quality objectives for these constituents.

4. WQBEL Calculations

- a. The Discharger conducted monitoring for priority and non-priority pollutants. The analytical results of one comprehensive sampling event were submitted to the Regional Water Board. The results of this sampling event were used in developing the requirements of this Order. Effluent limitations are included in this Order to protect the beneficial uses of the receiving stream and to ensure that the discharge complies with the Basin Plan objective that toxic substances not be discharged in toxic amounts.

- b. **Calculations for Effluent Limitations.** In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC$$

$$ECA_{HH} = HH$$

where: ECA_{acute} = effluent concentration allowance for acute (one-hour average) toxicity criterion

$ECA_{chronic}$ = effluent concentration allowance for chronic (four-day average) toxicity criterion

ECA_{HH} = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective

CMC = criteria maximum concentration (one-hour average)

CCC = criteria continuous concentration (four-day average, unless otherwise noted)

HH = human health, agriculture, or other long-term criterion/objective

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL). The statistical multipliers were calculated using data shown in Table 1.

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

$$MDEL = mult_{MDEL} \left[\min \left(\overbrace{M_A ECA_{acute}}^{LTA_{acute}}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}} \right) \right]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}} \right) AMEL_{HH}$$

where: $mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL

$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL

M_A = statistical multiplier converting CMC to LTA

M_C = statistical multiplier converting CCC to LTA

- c. **Mass-based Effluent Limitations.** In accordance with 40 CFR 122.45(b)(2), mass-based limitations were calculated by multiplying the concentration limitation by the long-term average flow (1.2 mgd) and the appropriate unit conversion factors.

Mass-based effluent limitations, or mass emission rates (MERs), for WQBELs applicable to Discharge 001 are calculated as follows:

$$MER = 8.34 \left(\frac{lb - L}{mg - gal} \right) \times AMEL - or - MDEL \times 1.2 (mgd)$$

- d. **Final WQBELs.** Table F-3 summarizes the final WQBELs contained in this Order.

Table F-3
Summary of Water Quality-based Effluent Limitations
Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Iron	µg/L	300	--	--	--	--
	lbs/day	3.0	--	--	--	--
Total Manganese	µg/L	50	--	--	--	--
	lbs/day	0.50	--	--	--	--
Nitrate Nitrogen	mg/L	10	--	--	--	--
	lbs/day	100	--	--	--	--
Total Ammonia as N	mg/L	0.59	--	--	--	--
	lbs/day	5.9	--	--	--	--
Electrical Conductivity	µmhos/cm	700	--	--	--	--
pH	standard units	--	--	--	6.5	8.5
The maximum 1-hour average effluent ammonia as N in the discharge shall not exceed 2.1 mg/L or 21 lbs/day.						

5. Whole Effluent Toxicity (WET)

The Basin Plan specifies a narrative objective for toxicity, requiring that “All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.” Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration and/or other appropriate methods as specified by the Regional Water Board. The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary, for other control water that is consistent with the requirements for “experimental water” as defined in Standard Methods for the Examination of Water and Wastewater (American Public Health Association, et al. 1992).

In addition to the Basin Plan requirements, Section 4 of the SIP states that a chronic toxicity effluent limitation is required in permits for all discharges that will cause, have the reasonable potential to cause, or contribute to chronic toxicity in receiving waters.

Numeric water quality criteria, or Basin Plan numeric objectives currently are not available for many of the aquaculture drugs and chemicals used by aquaculture facilities. Therefore, the Regional Water Board uses the narrative water quality objective for toxicity from the Basin Plan as a basis for determining “reasonable potential” for discharges of these drugs and chemicals. USEPA’s *Technical Support Document Water Quality-based Toxics Control* (TSD) specifies two toxicity measurement techniques that can be employed in effluent characterization; the first is Whole Effluent Toxicity (WET) testing, and the second is chemical-specific toxicity analyses. Whole effluent toxicity (WET) requirements protect the receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. WET tests measure the degree of response of exposed aquatic test organisms to an effluent. The WET approach allows for protection of the narrative “no toxics in toxic amounts” criterion while implementing numeric criteria for toxicity. There are two types of WET tests: acute and chronic. An acute toxicity test is conducted over a short time period and generally measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and growth. For fish hatcheries WET testing is used most appropriately when the toxic constituents in an effluent are not completely known; whereas chemical-specific analysis is more appropriately used when an effluent contains only one, or very few, well-known constituents.

Due to the nature of operations and chemical treatments at this Facility, its effluent contains only two known chemicals at any given time (ammonia and NaCl). Therefore, the Regional Water Board is using a chemical-specific approach to determine “reasonable potential” for discharges of aquaculture drugs and chemicals, and ammonia.

D. Final Effluent Limitations

1. 40 CFR Section 122.45 states that:

“...All pollutants limited in permits shall have limitations...expressed in terms of mass except...[f]or pH, temperature, radiation, or other pollutants which cannot appropriately be expressed by mass...Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permittee to comply with both limitations.”

2. Table F-4 summarizes the final technology-based and water quality-based effluent limits established in this Order.

Table F-4
Summary of Final Effluent Limitations
Discharge Point 001

Parameter	Units	Effluent Limitations					Basis
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	mgd	1.2	--	3.1	--	--	BPJ
Total Iron	µg/L	300	--	--	--	--	Basin Plan
	lbs/day	3.0	--	--	--	--	
Total Manganese	µg/L	50	--	--	--	--	Basin Plan
	lbs/day	0.50	--	--	--	--	
Nitrate Nitrogen	mg/L	10	--	--	--	--	Basin Plan
	lbs/day	100	--	--	--	--	
Total Ammonia as N	mg/L	0.59	--	--	--	--	Basin Plan
	lbs/day	5.9	--	--	--	--	
Electrical Conductivity	µmhos/cm	700	--	--	--	--	Basin Plan
pH	standard units	--	--	--	6.5	8.5	Basin Plan
The maximum 1-hour average effluent ammonia as N in the discharge shall not exceed 2.1 mg/L or 21 lbs/day.							Basin Plan
The Discharger shall minimize the discharge of total suspended solids to the BAT/BCT through implementing best management practices established in Special Provision VI.C.3 of this Order.							40 CFR Part 451

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. The Clean Water Act, Section 303(a-c), required states to adopt numeric criteria where they are necessary to protect designated uses. The Regional Water Board adopted numeric criteria in the Basin Plan. The Basin Plan is a regulatory reference for meeting the state and federal requirements for water quality control (40 CFR 131.20). State Water Board Resolution No. 68-16, the Antidegradation Policy, does not allow changes in water quality less than that prescribed in Water Quality Control Plans (Basin Plans). The Basin Plan states that; “The numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.” This Order contains Receiving Water Limitations based on the Basin Plan numerical and narrative water quality objectives for Biostimulatory Substances, Chemical Constituents, Color, Dissolved Oxygen, Floating Material, Oil and Grease, pH, Pesticides, Radioactivity, Salinity, Sediment, Settleable Material, Suspended Material, Tastes and Odors, Temperature, Toxicity and Turbidity.
2. **Fecal Coliform.** The unnamed tributary of the Cosumnes River has been designated as having the beneficial use of contact recreation (REC-1). For water bodies designated as having REC-1 as a beneficial use, the Basin Plan includes a water quality objective limiting the “...fecal coliform concentration based on a minimum of not less than five samples for any 30-day period...” to a maximum geometric mean of 200 MPN/100 ml. The objective also states that “...[no] more than ten percent of the total number of samples taken during any 30-day period [shall] exceed 400/100 ml.” This objective is included in the Order as a receiving water limitation.
3. **Dissolved Oxygen.** The unnamed tributary of the Cosumnes River has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Since the beneficial use of COLD does apply to the unnamed tributary of the Cosumnes River, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included in the Order.

For surface water bodies outside of the Delta, the Basin Plan includes the water quality objective that “...the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation.” This objective was included as a receiving water limitation in the Order.

4. **pH.** For all surface water bodies in the Sacramento River and San Joaquin River basins, the Basin Plan includes water quality objectives stating that “[t]he pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.” The Order includes receiving water limitations for both pH range and pH change.

The Basin Plan allows an appropriate averaging period for pH change in the receiving stream. Since there is no technical information available that indicates that aquatic organisms are adversely affected by shifts in pH within the 6.5 to 8.5 range, an averaging period is considered appropriate and a monthly averaging period for determining compliance with the 0.5 s.u. receiving water pH limitation is included in the Order.

5. **Temperature.** The unnamed tributary of the Cosumnes River has the beneficial uses of both COLD and WARM. The Basin Plan includes the objective that “[a]t no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature.” The Order includes a receiving water limitation based on this objective.
6. **Turbidity.** The Basin Plan includes the following objective: *“Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:*
 - a. Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.
 - b. Where natural turbidity is between 5 and 10 NTUs, increases shall not exceed 20 percent.
 - c. Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTU.
 - d. Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.”

B. Groundwater

1. The Basin Plan designates the beneficial uses of groundwater in the discharge area as MUN, AGR, industrial service supply (IND), and industrial process supply (PRO).
2. There is discharge to underlying groundwater from the Facility’s U-shaped treatment pond, unlined fish solids drying beds, and other onsite unlined wastewater conveyance channels.
3. The following Groundwater Limitation in this Order is based on the State Antidegradation Policy, State Water Board Resolution 68-16: Release of waste constituents from any storage, treatment, or disposal component associated with the Facility shall not, in combination with other sources of the waste constituents, cause groundwater within influence of the Facility and discharge area(s) to contain waste constituents in concentrations in excess of natural background quality.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 CFR requires all NPDES permits to specify recording and reporting of monitoring results. Sections 13267 and 13383 of the California Water Code authorize the Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program, Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for this facility.

A. Influent Monitoring

The Order establishes influent monitoring requirements to allow the Discharger to establish compliance with Total Suspended Solids net effluent limitations and to monitor the influent concentrations of EC, TDS and chlorides.

B. Effluent Monitoring

Pursuant to the requirements of 40 CFR 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Table F-5 summarizes the effluent monitoring required and the rationale for assigning the monitoring:

Table F-5.
Summary of Effluent Monitoring
Discharge Point 001

Parameter(s)	Monitoring Frequency	Rationale
Flow	Continuous	Determine compliance with flow limitations.
pH	1 / week	Determine compliance with instantaneous minimum and maximum effluent limitation.
Temperature, Dissolved Oxygen	1 / week	Monitoring of basic water quality parameters.
Total Suspended Solids	1 / month	Determine compliance with AMEL and MDEL.
Settleable Solids	1 / month	Determine compliance with AMEL and MDEL.
Total Iron, Total Manganese, Nitrate Nitrogen, Total Ammonia, EC	1 / month	Determine compliance with AMELs.
TDS and Chloride	1 / month	Monitor compliance with salinity limitations and determine relationship between EC and TDS.
Total Arsenic, Total Aluminum, Total Fluoride, Nitrite Nitrogen, MBAS	1 / quarter	Inconclusive preliminary monitoring suggests that effluent limitations are required for these parameters. Monitoring is assigned to gather additional information.

Parameter(s)	Monitoring Frequency	Rationale
CBOD, Total Phosphorous	1 / quarter	USEPA identified CAAP pollutants (see Section IV.B.1.b of this Fact Sheet)

C. Whole Effluent Toxicity Testing Requirements – Not Applicable

D. Receiving Water Monitoring

1. Surface Water – Not Applicable

This Order contains receiving surface water limitations as required to comply with the Basin Plan's water quality objectives. However, receiving surface water monitoring is not feasible and, therefore, not required in this Order. Sampling for compliance with the receiving surface water limitations will be established through monitoring of the Facility's effluent.

The Facility discharges to a Sacramento County drainage ditch. Once offsite, wastewater flow continues along the natural storm drainage route, discharges to an unnamed tributary of the Consumnes River, into a pond on a neighboring parcel, and ultimately to the Consumnes River. The unnamed tributary is an ephemeral stream, containing no flow for much of the year, making upstream monitoring infeasible. Furthermore, since the discharge flows through open areas prior to entering downstream waters, impacts from any discharges entering the drainage course could mask actual impacts of the discharge on downstream waters.

2. Groundwater

Groundwater monitoring must be conducted to determine if the Facility's groundwater discharge is causing wastewater constituent concentrations in groundwater to exceed WQO(s) or otherwise not comply with Regional Water Board plans and policies, including Resolution 68-16. This Order requires the Discharger to begin groundwater monitoring and includes a regular schedule of groundwater monitoring in the Monitoring and Reporting Program, Attachment E.

E. Other Monitoring Requirements

1. Solids Disposal Monitoring

This Order requires an annual solids disposal report describing the annual volume of solids generated by the Facility and specifying the disposal practices. This report must also include a certification that solids disposal methods were consistent with reasonable agronomic loading rates. Solids disposal monitoring is required to evaluate compliance with Construction, Operation, and Maintenance Specifications, Section VI.C.5.a, of this Order.

2. Treatment Pond Monitoring

Treatment pond monitoring is required to evaluate compliance with Construction, Operation, and Maintenance Specifications, Section VI.C.5.c, of this Order.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which in accordance with 40 CFR Sections 122.41 and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D to the Order.

B. Special Provisions

1. Reopener Provisions

- a. **Provision VI.C.1.a, Re-Opener Provision.** Conditions that necessitate a major modification of a permit are described in 40 CFR Section 122.62, which include the following:

(i) *When standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision.*

Therefore, if more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

(ii) *When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.*

- b. **Provision VI.C.1.b, Chemical or Antibiotic use Re-Opener Provision.** This provision requires that the Regional Water Board reopen this Order to include additional discharge requirements should the Discharger submit the information specified in Section VI.C.2.a for the use of aquacultural chemicals or antibiotics.
- c. **Provision VI.C.1.c, Studies/Monitoring Re-Opener Provision.** This provision allows the Regional Water Board to reopen this Order if review of the study results specified in Sections VI.C.2.b and VI.C.2.c of this Order or any effluent monitoring show that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective, or the discharge is causing groundwater degradation.
- d. **Provision VI.C.1.d, Salinity Study Re-Opener Provision.** This provision allows the Regional Water Board to reopen this Order if review of the salinity study results specified in Section VI.C.2.e show that additional salinity limitations are necessary to

comply with Provision VI.C.3.a.i; which requires the minimization of NaCl discharge to surface waters.

- e. **Provision VI.C.1.e, Transfer of Ownership Re-Opener Provision.** Tsar Nicoulai Caviar, LLC is currently negotiating the purchase of the remaining Facility property from the Ralph F. Nix 1995 Revocable Trust. This provision allows the Regional Water Board to reopen this Order to remove the Ralph F. Nix 1995 Revocable Trust as a Discharger named to this Order; if sole ownership of the Facility property is transferred to Tsar Nicoulai Caviar, LLC.
- f. **Final Effluent Limitation IV.A.1.c, Narrative TSS limitation.** This Order implements a narrative technology-based effluent limitation for TSS in accordance with the federal ELG specified in 40 CFR Part 451. This provision allows the Regional Water Board to establish more stringent requirements, including establishing numeric WQBELs, if monitoring data submitted by the Discharger or collected by the Regional Board determines more stringent requirements are necessary to protect water quality.

2. Special Studies and Additional Monitoring Requirements

- a. **Provision VI.C.2.a, Chemical and Aquaculture Drug Reporting Requirements.** As described in Section IV.B.1 of this Fact Sheet, the final ELG includes the following reporting and narrative requirements for CAAP facilities that are subject to 40 CFR Part 451:
 - Must notify the permitting authority of the use of any investigational new animal drug (INAD) and any extralabel drug use where the use may lead to a discharge to waters of the United States.
 - Reporting requirement for failure in or damage to the structure of an aquatic animal containment system, resulting in an unanticipated material discharge of pollutant to waters of the United States.
 - Develop and maintain a best management practice (BMP) plan for solids control, material storage, structural maintenance, record keeping, and training.

Prior to using any new chemical or aquaculture drug at the Facility, the Discharger is required to submit to the Regional Water Board a RWD and be issued waste discharge requirements and/or NPDES permit authorizing the discharge. The RWD must contain the reporting and toxicity testing of the new chemical or aquaculture drug as specified in Section VI.C.2.a of this Order. These reporting and toxicity testing requirements are needed for the Regional Water Board to determine if the discharge of a new drug or chemical by the Facility has reasonable potential to cause, or contribute to an in-stream excursion above any chemical-specific water quality criteria, narrative water quality objective for chemical constituents from the Basin Plan, or narrative water quality objective for toxicity from the Basin Plan.

- b. **Provision VI.C.2.b, Priority Pollutants.** According to Section 1.2 of the SIP, the Discharger must report data for all the priority pollutants listed in the CTR. The data are used to determine reasonable potential for these constituents to cause or contribute

to an exceedance of applicable water quality criteria and to calculate effluent limitations. The Discharger has sampled the effluent once for most priority pollutants, but has not submitted enough data to adequately characterize the discharge. Provision VI.C.2.b of this Order requires the Discharger to provide additional priority pollutant data for the effluent.

- c. **Provision VI.C.2.c, Groundwater Monitoring.** Provision VI.C.2.c requires the Discharger to install monitoring wells and implement a groundwater monitoring program to begin characterizing background groundwater quality to determine whether the Facility's discharge is causing groundwater degradation.
- d. **Provision VI.C.2.d, Mosquito and Vector Control Plan.** Based on findings from facility site visits and inspections, the current operational and site conditions at the Facility indicate excessive standing water and vegetation that is conducive to habitats for mosquitoes and other vectors and may result in the Facility creating a condition of nuisance. Surrounding landowners have complained about mosquito problems originating at the Facility. Provisions VI.C.5.c and VI.C.5.d require the Discharger to submit a plan that is approved by the Sacramento-Yolo Mosquito and Vector Control District to immediately address the conditions at the site and implement adequate operation and maintenance practices to ensure the Facility does not create a condition of nuisance.
- e. **Provision VI.C.2.e, Salinity Discharge Study.** Due to limited monitoring data available to the Regional Board during the development of this Order, this Order establishes a maximum allowable EC effluent limitation. Provision VI.C.2.e requires that the Discharger characterize source water and effluent salinity to determine compliance with Provision VI.C.3.a.i, requiring the minimization of salt discharged to receiving waters, and also to provide monitoring data to evaluate the need to establish a more stringent effluent limitation for EC.

3. Best Management Practices and Pollution Prevention

- a. **Provision VI.C.3.a, Best Management Practices.** Best Management Practices plan requirements are established based on requirements in Effluent Limitations Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category at 40 CFR 451. CAAP facilities that are subject to the federal ELG are required to develop and maintain a BMP plan that address the following requirements: solids control, material storage, structural maintenance, record-keeping, and training. The Discharger must make the BMP plan available to the Regional Water Board upon request, and submit certification that the BMP plan has been developed.
- b. **Stormwater Requirements.** Storm water discharges from the Facility are not required to be regulated under the General Permit for Discharges of Storm Water Associated with Industrial Activities (State Water Resources Control Board, Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001).

4. Compliance Schedules – Not Applicable

5. Construction, Operation, and Maintenance Specifications

- a. **Provisions VI.C.5.a,b.** Solid waste disposal provisions in this Order are based on the requirements of CCR Title 27 and prevention of unauthorized discharge of solid wastes into waters of the United States or waters of the State. Other construction, operation, and maintenance specifications are to prevent other unauthorized discharges to waters of the United States or waters of the State.
- b. **Provision VI.C.5.c, Treatment Pond Specifications.** These provisions are operational requirements for the treatment pond. These requirements are similar to those required for Publicly Owned Treatment Works (POTWs) wastewater treatment and disposal ponds.
- c. **Provision VI.C.5.d, Mosquito Control.** These provisions require that the Discharger manage the Facility's ponds and grounds to prevent the breeding of mosquitoes.

6. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable

7. Other Special Provisions

Other special provisions in this Order include specific requirements for change of discharge point and change of ownership.

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the Tsar Nicolai Sturgeon Farm. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments should be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on **June 6, 2005**.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: **June 23/24, 2005**
Time: 8:30 am
Location: Regional Water Quality Control Board
11020 Sun Center Dr #200
Rancho Cordova, CA

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our web address is <http://www.waterboards.ca.gov/centralvalley/> where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The RWD, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (916) 464-3291.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Pat Leary at (916) 464-4623.